

Spot Safety Project Evaluation

Project Log # 200611077

Spot Safety Project # 07-01-225

**Spot Safety Project Evaluation of the Installation of Traffic Islands and
Dual Indicated Stop Signs on SR 1100 (Kerr's Chapel Rd)
At its Intersection with SR 1106 (Milesville Rd / Stoney Creek Mountain Rd)
Near Anderson in Caswell County**

Documents Prepared By:

Safety Evaluation Group
Traffic Safety Systems Management Section
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North Carolina Department of Transportation

Principal Investigator

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Traffic Safety Project Engineer

1-30-07

Date

Spot Safety Project Evaluation Documentation

Subject Location

Evaluation of Spot Safety Project Number 07-01-225 – SR 1100 (Kerr’s Chapel Road) and SR 1106 (Milesville Rd / Stoney Creek Mountain Road) in Caswell County.

Project Information and Background from the Project File Folder

The spot safety project improvement countermeasure chosen for the subject location was the installation of traffic islands and dual indicated stop signs on both approaches of SR 1100 (Kerr’s Chapel Rd) at its intersection with SR 1106 (Milesville Rd / Stoney Creek Mountain Rd). SR 1100 and SR 1106 are both 2-lane facilities with no turn lanes and speed limits of 55 mph in all directions. Both approaches of SR 1100 have “Stop Ahead” warning signs with eastbound SR 1100 having dual posted warning signs.

The initial statement of problem was the high potential for vehicles to run the stop sign on SR 1100 and the installation of traffic islands with dual posted stop signs would alleviate the potential accident hazard. SR 1106 is also equipped with “Intersection Crossing” warning signs on both approaches.

The initial crash analysis was conducted from August 1, 1998 to July 31, 2001 with 2 reported “Angle” crashes. These crashes produced 1 Fatal and 3 “Class-A” injuries.

The final completion date for the improvement at the subject intersection was on August 1, 2002 with a total cost of \$60,000.00.

Naive Before and After Analysis

After reviewing the spot safety project file folder along with all the crashes at the subject location, the crash data omitted from this analysis to consider for an adequate construction period was from July 1, 2002 through September 30, 2002. The before period consisted of reported crashes from August 1, 1998 through June 30, 2002 (3 years, 11 month) and the after period consisted of reported crashes from October 1, 2002 through August 31, 2006 (3 years, 11 month). The ending date for this analysis was determined by amount of data that was available for use at the time of the analysis.

The treatment data consisted of all crashes within 150 feet of the subject intersection. *Please see attached location map and photos for further details.*

The following data table depicts the Naive Before and After Analysis for the treatment location. Please note that Frontal Impact Crashes were the target crashes for the applied countermeasure. The Frontal Impact Crash types considered are as follows: Left turn, same roadway; Left turn, different roadways; Right turn, same roadway; Right turn, different roadways; Head on; and Angle.

<u>Treatment Information</u>			
	Before	After	Percent Reduction (-) Percent Increase (+)
Total crashes	2	0	- 100.0%
Total Severity Index	38.9	0	- 100.0%
Target Crashes	2	0	- 100.0%
Target Crashes Severity Index	38.9	0	- 100.0%
Volume	1,400	1,200	- 14.29%

<u>Injury Crash Summary</u>			Percent Reduction (-) Percent Increase (+)
	Before	After	
Fatal Crashes	1	0	- 100.0%
Class A Crashes	0	0	N/A
Class B Crashes	0	0	N/A
Class C Crashes	0	0	N/A
Total Non-Fatal	0	0	N/A
Total Injury Crashes	1	0	- 100.0%

The naive before and after analysis at the treatment location resulted in a 100 percent decrease in Total Crashes, a 100 percent decrease in Target Crashes, and a 14 percent decrease in Average Daily Traffic (ADT). The before period ADT year was 2000 and the after period ADT year was 2004.

Results and Discussion

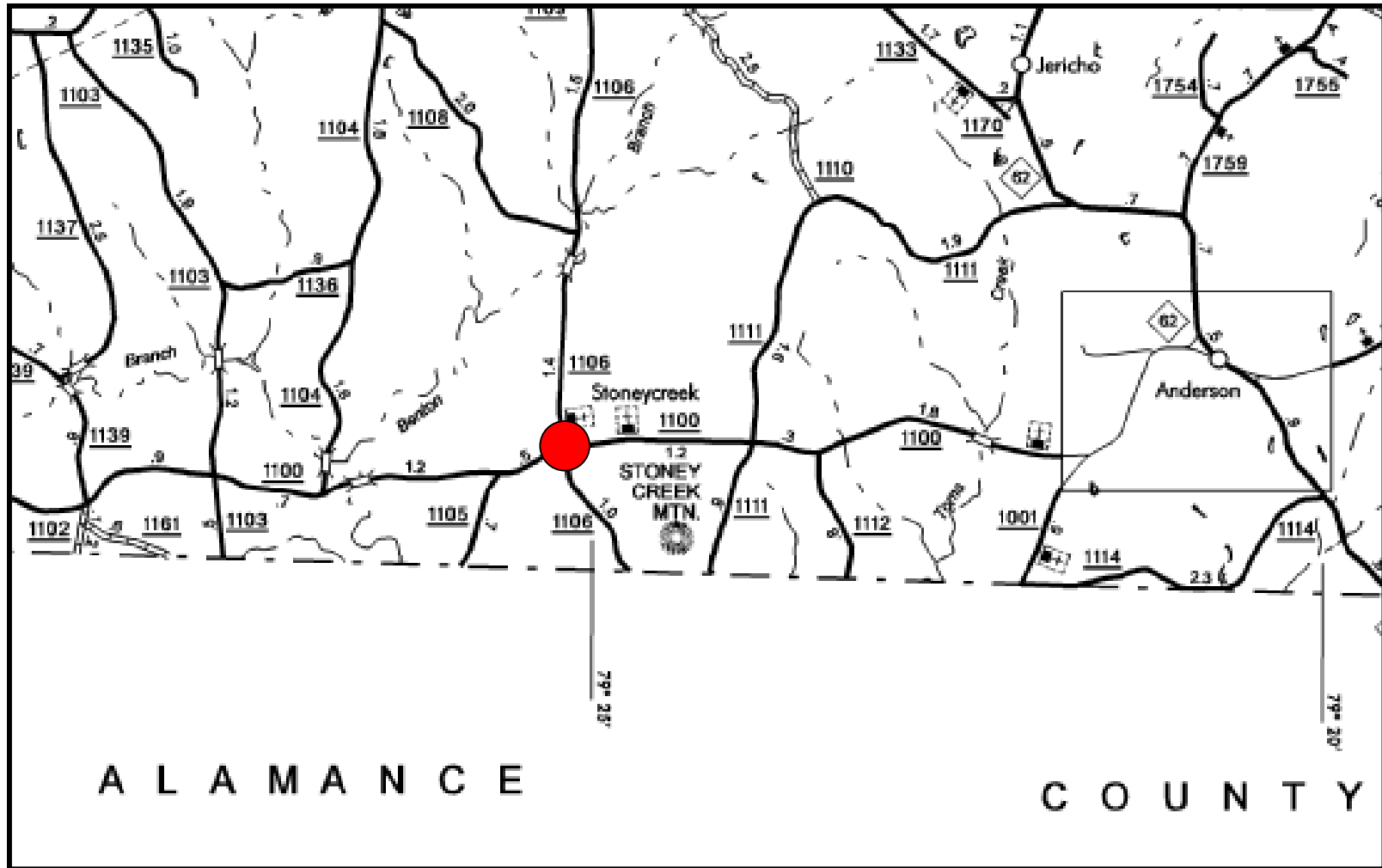
The naive before and after analysis involving the comparison of treatment actual before data versus treatment actual after data resulted in a 100 percent decrease in Total Crashes and in Target Crashes, while the ADT decreased slightly. The Total Severity Index decreased 100 percent, as did the Target Crash Severity. The summary results above demonstrate that the treatment location appears to have been successfully corrected both Total Crashes and Target Crashes from the before to the after period.

After analyzing the crash reports and discovering the lack of any crashes in the after period, it is reasonable to conclude that vehicles now properly react to the enhanced warning and control devices at this intersection.

Please see the attached *Treatment Site Photos*. Photos are provided for all four approaches to the intersection.

As the Safety Evaluation Group completes additional spot safety reviews for this type of countermeasure, we will be able to provide objective and definite information regarding actual crash reduction factors for this type of intersection.

Location Map
Caswell County
Evaluation of Spot Safety Project 07-01-225



Treatment Location: SR 1100 (Kerr's Chapel Rd) and SR 1106 (Stoney Creek Mountain Road)

Treatment Site Photos Taken December 14, 2006



Driving Eastbound on SR 1100 (Kerr's Chapel Rd)



Eastbound SR 1100 Dual Warning Signs



Driving Northbound on SR 1106 (Stoney Creek Mountain Road)



Driving Westbound on SR 1100



Driving Southbound on SR 1106 (Milesville Rd)



Sight Distance Driving Eastbound on SR 1100 Looking North

SR 1106
Milesville Road
55 MPH

Salon Driveway

SR 1100
Kerr's Chapel Road
55 MPH

SS# 07-01-225
BEFORE PERIOD
8/1/1998 - 6/30/2002
CASWELL COUNTY
SR 1100 (KERR'S CHAPEL)
and SR 1106 (STONEY CREEK)

SR 1106
Stoney Creek Mtn. Rd
55 MPH

LEGEND

MOVING VEHICLE	ANGLE	9 MPH OR LESS	P PEDESTRIAN
PEDESTRIAN	TURNING	10 MPH TO 19	T TRAIN
PARKE D VEHICLE	BACKING	20 MPH TO 29	* DRIVER AT FAULT
PARKE D VEHICLE	SLIDING	30 MPH TO 39	D DRY
FIXED OBJECT	OUT OF CONTROL	40 MPH TO 49	W WET
HEAD ON	INJURY	50 MPH TO 59	I ICY OR SNOWY
REAR END	FATALITY	60 MPH TO 69	O OIL
RAN OFF ROAD		70 AND UP	
		SPEED UNKNOWN	



TRAFFIC SAFETY SYSTEMS MANAGEMENT UNIT

COLLISION DIAGRAM	
DIVISION: 7	AREA:
STUDY PERIOD: 8/1/1998 TO 6/30/2002	
DISTANCE: 1-LINE 1-150 FT	
ANALYSIS PREPARED BY: JBS	
ANALYSIS CHECKED BY: CS	
DIAGRAM PREPARED BY: JBS	
DIAGRAM REVIEWED BY: ST	
SCALE:	NOT TO SCALE
DATE: 1-15-2006	
LOG NUMBER: 20060111 SS 07-01-225	

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
TRAFFIC ENGINEERING AND SAFETY
SYSTEMS BRANCH

SR 1106
Milesville Road
55 MPH

SR 1100
Kerr's Chapel Road
55 MPH

No Crashes Reported
During After Period

SS# 07-01-225
AFTER PERIOD
10/1/2002 - 8/31/2006
CASWELL COUNTY
SR 1100 (KERR'S CHAPEL)
and SR 1106 (STONEY CREEK)

SR 1106
Stoney Creek Mtn. Rd
55 MPH

LEGEND

MOVING VEHICLE	ANGLE	9 MPH OR LESS	P PEDESTRIAN
PEDESTRIAN	TURNING	10 MPH TO 19	T TRAIN
PAIRED VEHICLE	BACKING	20 MPH TO 29	* DRIVER AT FAULT
PARKING VEHICLE	SIDESWIP	30 MPH TO 39	D DRY
FIXED OBJECT	OUT OF CONTROL	40 MPH TO 49	W WET
HEAD ON	INJURY	50 MPH TO 59	I Icy OR SNOWY
REAR END	FATALITY	60 MPH TO 69	O OLY
RAN OFF ROAD		70 AND UP	
		SPEED UNKNOWN	



TRAFFIC SAFETY SYSTEMS MANAGEMENT UNIT

COLLISION DIAGRAM	
DIVISION: 7	AREA:
STUDY PERIOD: 10/1/2002 TO 8/31/2006	
DISTANCE: 1/4 MI. + 150 FT	
ANALYSIS CHECKED BY: CS	
DIAGRAM PREPARED BY: JBS	
DIAGRAM REVIEWED BY: ST	
SCALE: NOT TO SCALE	
DATE: 1-15-2006	
LOG NUMBER: 2006MOTT SS 07-01-225	

N.C. DEPARTMENT of TRANSPORTATION
DIVISION of HIGHWAYS
TRAFFIC ENGINEERING AND SAFETY
SYSTEMS BRANCH